

February 22, 2016

Mr. Scott Wilson
Acting Regional Manager, Bay Delta Region
California Department of Fish and Wildlife (CDFW)
7329 Silverado Trail
Napa, CA 94558
cc: scott.wilson@wildlife.ca.gov

Re: East Bay Zoological Society “California Trail” project – Violations of CDFW Incidental Take Permit

Dear Mr. Wilson:

We alerted your Department on September 3, 2015 to significant violations of the California Department of Fish and Wildlife (CDFW) Incidental Take Permit granted to the East Bay Zoological Society (EBZS) for its “California Trail” project now being constructed on the ridgeline of Oakland’s Knowland Park. Unfortunately, the permit violations and habitat damage continued well beyond what we documented in that initial complaint.

The CDFW Incidental Take Permit (ITP) covers a major development project in 56 acres of parkland recognized for its critical habitat for the threatened Alameda striped racer and rare California native grasslands. When you granted EBZS permission to build within a sensitive park area, EBZS gave assurances to the public that the environmental protections built into their permits would be followed.

However, park visitors have noticed general disregard for several significant environmental requirements in the CDFW permit, as well as in other permits for this project—and construction is only in its early phases. We are reporting at least one acre of unpermitted damage that could be observed and documented through September 2015. EBZS consultants responsible for on-site monitoring and the City as lead agency for permit oversight did not intervene to stop the habitat damage we are reporting.

With this letter of complaint, we request that CDFW take actions in the following **four areas** to ensure that EBZS complies with the conditions of their Incidental Take Permit (ITP):

- **Require EBZS to submit legible baseline documents that specifically show the locations of protected native grassland, permitted damage, and actual damage to date**
- **Require prompt repair of habitat damage from fence construction**
- **Enforce the permit provisions for control of invasive weeds**
- **Implement independent monitoring to ensure ongoing EBZS permit compliance**

This letter includes these sections:

- I. Background of environmental requirements for building in Knowland Park highlands
- II. Permit requirements and actual EBZS compliance: July – September, 2015
- III. Requested CDFW actions
- IV. Supporting exhibits

I. Background of environmental requirements for building in Knowland Park highlands

For decades, Knowland Park has brought children and adults into direct contact with our state's native plant communities, birds, and free-roaming wildlife. Knowland Park is an ecological treasure, a living classroom, and an urban retreat for the public. In addition to hosting 44 locally rare plant species, the park features original maritime chaparral and native bunchgrass prairie, both of which are critical habitat for the threatened Alameda striped racer (**ASR**) and rare within California. With *less than one percent* of native California grasslands remaining in our state, Knowland Park features a diversity of native grassland species that have established and survived on this site over hundreds of years.

In July 2015, East Bay Zoological Society, the contracted operator of the Oakland Zoo, began construction of a "California Trail" exhibit uphill from the Zoo in the Knowland Park highlands. In public hearings over five years, Zoo consultants, staff, and trustees repeatedly assured elected officials and the public that any development-related damage to rare flora and wildlife habitat would be negligible, because they would be following strict regulatory requirements prescribed in the CDFW Incidental Take Permit, the US Fish and Wildlife Service Biological Opinion, and the City-approved "Habitat Enhancement Plan" (**HEP**) that was written by EBZS and included in the City-approved Supplemental Mitigated Negative Declaration/Addendum (**SMND/A**) for the project. EBZS management promised to hold themselves to exemplary standards during construction, in the interest of protecting the rare and unique natural resources of Knowland Park.

The US Fish and Wildlife Service (**USFWS**), California Department of Fish and Wildlife, and the US Army Corps of Engineers (**USACE**) subsequently gave final approval to permits that included a range of conditional habitat protection measures and a conservation easement required for the project to proceed. The environmental protections apply to the pre-construction, construction, and post-construction stages for this project.

Despite these environmental requirements, site damage began in late July 2015 during the installation of the perimeter fence and wildlife exclusion fence, on State-recognized rare native grasslands proposed by EBZS and accepted by the environmental regulatory agencies as critical foraging and dispersal habitat for the Alameda striped racer. The damage is in direct violation of multiple provisions of the CDFW Incidental Take Permit (detailed in Section II of this complaint).

EBZS expert consultants who are responsible for on-site monitoring were supposed to stop work if sensitive areas were being damaged. They did not. A second level of construction monitoring by the City—as the lead agency for regulatory permit oversight and as the building permit enforcer—also failed to halt permit violations. Noticing the disregard for protected parkland, Oakland citizens and environmental organization volunteers documented and reported these violations. On September 3, 2015, we sent a letter to the Oakland City Planning Department, alerting them to violations of environmental protections under the City's building permit for the perimeter fence, with copies to CDFW, USFWS, USACE, and Regional Water Quality Control Board (**RWQCB**).

Unfortunately, the City's response does not bode well for conservation of Alameda striped racer habitat and rare California flora. In their reply dated September 16, 2015 and copied to your agency,

the City Planning Department acknowledges that parkland and habitat were damaged by EBZS construction. **(Figure 1.)** However, they contend that the environmental protections in the building permit – many mirroring the conditions for approval in your ITP – are not really regulatory *requirements*; instead, the City implies these protections are voluntary. An EBZS response that accompanied the City’s letter takes the same unobligated approach, seeks to divert attention from the damage, and waters down the need for EBZS to comply with the requirements of their environmental permits.



Figure 1. Example of unauthorized damage to former rare native grassland and Alameda striped racer habitat torn up during construction of perimeter fence (*left*) and wildlife exclusion fence (*right*).

Note: While photos used throughout this complaint show areas of damage to seasonally dormant (straw-colored) native grasses and forbs, in other seasons, the native bunchgrasses turn green, the wildflowers bloom, and these areas support a diversity of life.

Current local self-policing for this project is not reliable. Agreed-upon environmental protections are being ignored, even though the elements of the permit are well known to all parties. Permit details were hashed out between CDFW and EBZS, with EBZS contributing many of them. These protections have been touted repeatedly by EBZS and their professional consultants in public meetings for half a decade.

The City Planning Department’s lenient response to EBZS’s non-compliance raises a serious question of whether the City has already effectively forfeited its role as the lead agency for permit oversight. Based on documentation in Section II of this complaint, sufficient action is now needed from your Department to enforce the CDFW permit.

II. Permit requirements and actual EBZS compliance: July – September, 2015

Following is a numbered list of certain regulatory and City permit conditions agreed to by the East Bay Zoological Society (permittee) and the City of Oakland (permit lead agency), each item with a summary of actual EBZS compliance. Source documents and references are cited. Reference to lettered locations at the site correspond to the same letters used in the EBZS building permit plans to label site areas for the perimeter fence.

Unpermitted site damage that is visible from the boundaries of the perimeter fence is clearly underestimated to be at least one acre of public parkland. The condition of habitat and native grassland in other areas further inside the construction zone is unknown to the public. There are 13 EBZS violations of permit conditions listed as follows:

1. PERMIT CONDITION: Identify areas of Alameda striped racer habitat and protected native grasslands, and follow basic protective measures to avoid and preserve those sensitive areas.

a. REQUIRED: Delineate locations of “protected native grasslands” on the building plans.

EBZS COMPLIANCE: Disregarded

Both the USFWS Biological Opinion and the City/EBZS Habitat Enhancement Plan require EBZS to delineate the locations of “protected native grasslands” on all building plans for contracted workers to know there are grasslands to be protected and where they are located, so they can avoid damage to these sensitive areas.

The “Supplemental Grassland Mapping” (see Attachment 1A) that was approved by the City Council on November 18, 2014 showed the areas of State-recognized rare native grasslands within or adjacent to the project site. However, **no native grasslands were marked for protection in the building plans** submitted by EBZS for their perimeter fence building permit (#GR1500068 – #PZ1500051). General mention is made of native grasslands in the plan’s text comments, but no native grasslands are mapped and labeled as “protected.” (see Attachment 1B)

By omitting the delineation of “*protected* native grasslands” in the building plans, the developer (EBZS) **has essentially indicated to the contractors that there are none**. As a result, there has been substantial damage to Alameda striped racer habitat and protected native grasslands at the site.

Neglect of this basic protective measure continued. The temporary access road plan submitted by EBZS and approved by the City (building permit #GR1500100) also omits any designation or mapping of “*protected* native grasslands.”

Source documents:

- USFWS, Biological Opinion, p. 12, number 31a

- Supplemental Mitigated Negative Declaration/Addendum (SMND/A), Habitat Enhancement Plan (HEP), “Implementing Action 2–6,” p. 14, developed by EBZS and approved by City
- Attachment 1A – EBZS and City “Supplemental Grassland Mapping” (11-18-14)

Documentation of violation:

“Protected native grasslands” were not identified in:

- EBZS Building Permit #GR1500068 – #PZ1500051, p. PF-3 (Permit plans not released; viewable only at City Planning and Building office)
- EBZS Building Permit #GR15000100 (Permit plans not released; viewable only at City Planning and Building office)
- Attachment 1B – EBZS Storm Water Pollution Protection Plan submitted to Regional Water Quality Control Board

b. REQUIRED: Stands of protected native grasslands shall be marked in the field and protective fencing installed prior to construction.

EBZS COMPLIANCE: Disregarded

In addition to being required to detail the locations of State-recognized rare native grasslands on the building plans, EBZS was supposed to mark these stands in the field with temporary protective fencing prior to construction. However, construction of the perimeter fence and wildlife exclusion fence was started in the last week of July 2015 without any protective fencing in place to alert contractors that there were protected rare native grassland stands to avoid.

Figure 2. Knowland Park hillside immediately above Zoo with approximately 530 linear feet (estimated .41 acres) of unpermitted damage to protected grassland from construction equipment. Extensive soil-tear on both development and public sides of perimeter fence. Use of equipment here (Site Areas C–D) is prohibited by both CDFW and City permits. **Complaint sections 1a–e, h, 2a, c, d.**



As a result, damage occurred. (**Figure 2.**) A few flimsy signs marked “CE” (i.e., “conservation easement”) appeared on the site later, but well after widespread damage had been done to Alameda striped racer habitat and protected native grasslands.

This area is part of the conservation easement that CDFW accepted as mitigation for EBZS permanently eliminating existing areas of Covered Species’ (Alameda striped racer) habitat. The conservation easement is designated to be a protected area, but no protections were applied.

Source documents:

- CDFW ITP, Section 7.6 “Vegetation Marked for Protection,” p. 14
- CDFW ITP, Section 6.3 “Compliance Monitoring,” p. 11
- USFWS Biological Opinion, p. 12, number 31b
- Supplemental Mitigated Negative Declaration/Addendum (SMND/A), Habitat Enhancement Plan (HEP), “Implementing Action 2–6,” pp. 14–15, developed by EBZS and approved by City
- Attachment 1A – EBZS and City “Supplemental Grassland Mapping”

Documentation of violation: Figures 1–7 photos

- c. REQUIRED: No vehicles are allowed to cross Covered Species’ (Alameda striped racer) habitat.**
EBZS COMPLIANCE: Disregarded

Figure 3. (left) Off-road equipment tracking and damage on protected native grassland and Alameda striped racer habitat above Zoo’s veterinary hospital (Site Areas C–D). Estimated **.10 acres** of unpermitted damage to public parkland. (right): EBZS construction vehicles being driven freely over protected rare native grasslands and ASR habitat in clear violation of EBZS permits. **Complaint sections 1a–e, g, h, 2a–d.**



Under the ITP and the City building permit, equipment is not permitted on Covered Species' (Alameda striped racer) habitat. Nevertheless, construction equipment has regularly trafficked across and damaged Covered Species' habitat and State-recognized rare native grasslands. Torn soils and equipment tracks were evident off-road in the project area, and also outside the project area in land that remains open public parkland. (Figure 3, Figure 4.)

Source documents:

- CDFW ITP, Section 5.11 "Project Access" – vehicles and construction equipment shall stay on established roads
- CDFW ITP, Section 6.3 "Compliance Monitoring," p. 11
- City Building Permits #GR1500068 – #PZ1500051, p. PF-3 – prohibits "circular routes off working strip" (Permit plans not released; viewable only at City Planning and Building office)

Documentation of violation: Figures 1–7 photos

Figure 4. Southeast ridge (Site Areas E–E1) with approximately 40 linear feet x 25 feet = estimated **.02 acres** of unauthorized construction equipment damage to public parkland and protected native grassland outside development footprint. **Complaint sections 1a–d, f, h, 2a, c, d.**



- d. **REQUIRED: Perimeter fence is to be installed manually to avoid habitat damage and harm to Alameda striped racer.**

EBZS COMPLIANCE: Disregarded

The CDFW permit specifically requires the entire perimeter fence to be constructed "by hand with minimum vegetation clearing, and alignment adjusted to avoid tree trunks and other sensitive vegetation." Instead, EBZS used tractor equipment extensively for both the perimeter fence and wildlife exclusion fence. Use of this equipment resulted in significant site damage.

Source documents:

- CDFW ITP, “Perimeter Fence,” pp. 3–4
- CDFW ITP, Section 6.3 “Compliance Monitoring,” p. 11
- Attachment 1C – Layout of EBZS perimeter fence
- Attachment 1D – Overview of ASR habitat/protected rare native grasslands damaged by EBZS construction in violation of environmental permits

Documentation of violation: Figures 2, 3, 4, 5, 7 photos

e. REQUIRED: City building permit requires site areas “C–D” of the perimeter fence to be installed manually to avoid site damage.

EBZS COMPLIANCE: *Disregarded*

Contrary to the CDFW ITP requirement that the *entire* perimeter fence be installed manually, EBZS submitted their request for a City building permit that required manual installation only for a limited portion of the fence on the hillside above the veterinary hospital, identified as site areas C–D in the EBZS perimeter fence permit plans, and the City approved it. This is part of the “conservation easement” area accepted by CDFW to mitigate for EBZS destruction of adjacent Alameda striped racer habitat in this project.

But instead of manual installation, EBZS allowed tractor equipment to drive undeterred across this conservation easement area, with no intervention by City building inspectors or the on-site EBZS biological monitors charged with ensuring permit compliance. Use of this equipment resulted in extensive site damage.

Source documents:

- City Building Permits #GR1500068 – #PZ1500051, p. PF-3 for perimeter fence (Permit plans not released; only viewable at City Planning and Building office)
- CDFW ITP, “Perimeter Fence,” pp. 3–4
- CDFW ITP, Section 6.3 “Compliance Monitoring,” p. 11
- Attachment 1C – Layout of EBZS perimeter fence
- Attachment 1D – Overview of ASR habitat/protected rare native grasslands damaged by EBZS construction in violation of environmental permits

Documentation of violation: Figures 2, 3 photos

f. REQUIRED: City building permit allows soil disturbance to a maximum of 5-feet wide along remainder of perimeter fence in site areas “D–F.”

EBZS COMPLIANCE: *Disregarded*

Although the ITP required manual construction for the perimeter fence, the City omitted this regulatory condition and instead approved a building permit allowing soil disturbance within

five feet of both sides of the perimeter fence line (site areas D–F in the perimeter fence building permit). But even with a lower standard of environmental protection, EBZS did not comply. In **Figure 5**, tire damage from tractor equipment is evident up to 30 feet on each side of the fence. This violation was not stopped by City building inspectors or by on-site EBZS biological monitors charged with ensuring permit compliance.

Figure 5. Unauthorized damage by equipment to public parkland and protected native grassland along perimeter fence, outside of project footprint. Top of southeast-facing fence (Site Areas E1–E2) – approximately 30 linear feet x 30 feet = estimated **.02 acres** of damage. **Complaint sections 1a–d, f, h; 2a, c, d.**



Source documents:

- City Building Permits #GR1500068 – #PZ1500051 for perimeter fence (Permit plans not released; only viewable at City Planning and Building office)
- CDFW ITP, “Perimeter Fence,” pp. 3–4
- CDFW ITP, Section 6.3 “Compliance Monitoring,” p. 11
- Attachment 1C – Layout of EBZS perimeter fence
- Attachment 1D – Overview of ASR habitat/protected rare native grasslands damaged by EBZS construction in violation of environmental permits

Documentation of violation: Figures 3, 4, 5, 7 photos

- g. **REQUIRED:** Identify native grassland to be protected from construction damage, including wildlife exclusion fence installation.

EBZS COMPLIANCE: Disregarded

The materials and methods EBZS used to install the wildlife exclusion fence led to trenching and scraping of sensitive native grassland identified as protected in the “Supplemental Grassland



Figure 6. (top) EBZS trenching and scraping damage across original and intact native bunchgrass prairie for the wildlife exclusion fence. (Site Areas D–E). Approximately 1,700 linear feet x 7 feet = estimated **.27 acres** damage outside of project footprint. **Complaint sections 1a–c, g, h; 2b, c, d.** (bottom) Another example of the damaging method used to install the wildlife exclusion fence.

Mapping” of the SMND/A. (**Figure 6.**) Such permanent damage to this native grassland could have been avoided in two ways: 1) by taking the time needed to install the fence properly rather than sacrifice environmental protections for quick-and-dirty construction expedience, or 2) by using an available alternative fencing product specifically designed to eliminate the need for destructive trenching (see Attachment 2).

Source documents:

- CDFW ITP, Section 7.6 “Vegetation Marked for Protection,” p. 14
- Supplemental Mitigated Negative Declaration/Addendum (SMND/A), Habitat Enhancement Plan (HEP), “Implementing Action 2–1,” pp. 12–13
- Supplemental Mitigated Negative Declaration/Addendum (SMND/A), Habitat Enhancement Plan (HEP), “Implementing Action 2–6,” pp. 14–15

Documentation of violation: Figure 6 photo

h. REQUIRED: Comply with Regional Water Quality Control Board’s storm water permit requirements and standard practices for protection of existing vegetation.

EBZS COMPLIANCE: Disregarded

EBZS’s concern for expedient construction was allowed to trump standard and common sense practices of vegetation protection, as described earlier and in photos, even though EBZS indicated they would follow these standards by submitting them with their erosion control plan (see Attachment 3).

The Regional Water Quality Control Board’s Storm Water Pollution Prevention Plan requirements mirror both the ITP and the USFWS Biological Opinion conditions for approval by requiring protection of existing vegetation. To prevent erosion, the Regional Water Quality Control Board’s “Preservation of Existing Vegetation EC-2” standard practices state that natural vegetation is to be designated on plans, and marked for protection in the field, especially on steep hillsides.

Source documents:

- USFWS Biological Opinion, number 18, p. 8
- CDFW ITP, Section 2 “Legal Compliance,” p. 7
- Attachment 3 – Preservation of Existing Vegetation EC-2 standard practices

Documentation of violation: Figures 1–7 photos

2. PERMIT CONDITION: Compliance with ITP should be monitored on-site daily, with proper and timely notifications to CDFW.

a. REQUIRED: Permittee will notify CDFW 14 days in advance of starting work on the California Trail construction.

EBZS COMPLIANCE: Disregarded

EBZS failed to notify CDFW before starting construction work, as confirmed in a phone inquiry to CDFW staff. The State was not aware that work was underway, nor was the public until they began to notice the damage already occurring on protected grasslands.

Source document:

- CDFW ITP, Section 6.1 “Notification Before Commencement,” p. 11

b. REQUIRED: Permittee will submit notice of the location and design of the wildlife exclusion fence for CDFW review 30 days in advance of the start of installation.

EBZS COMPLIANCE: Disregarded

Per phone inquiry to CDFW staff, description of the location and design of the wildlife exclusion fence was submitted three days prior to the start of installation, rather than the required 30 days. CDFW had no time to review EBZS plans so that any risk of unnecessary damage might be identified and averted.

As described and documented earlier (Section II, 1g), EBZS’s choice for the wildlife exclusion fence materials and the methods used to install it have caused significant damage to protected rare native grassland and Alameda striped racer habitat.

Source document:

- CDFW ITP, Section 7.5 “Temporary Covered Species Barrier,” p. 14

c. REQUIRED: Designated biologist shall monitor for compliance with all measures of this ITP.

EBZS COMPLIANCE: Disregarded

Designated EBZS biologist should be on-site daily when ‘Covered Activities’ occur, to conduct compliance inspections to:

- Minimize incidental take of the Covered Species
- Prevent unlawful take of species
- Check for compliance with *all* measures of this ITP
- Check all exclusion zones

- Ensure that signs, stakes, and fencing are intact, and that Covered Activities are only occurring in the project area

Source document:

- CDFW ITP, Section 6.3 “Compliance Monitoring,” p. 11

Documentation of violation: Figures 1–8 photos

d. Permittee will send notification of non-compliance to CDFW.

EBZS and CITY COMPLIANCE: Disregarded

None of the agents entrusted to monitor construction and enforce permit requirements (not the EBZS on-site biological monitors, the supervising City building inspector as lead agency, nor EBZS management as the project permittee and “designated representative”) notified CDFW when habitat damage started above the veterinary hospital or as it continued. It was Oakland citizens and environmental organization volunteers concerned for the park’s natural resources who notified the City Planning and Building Department and the regulatory agencies about EBZS’s failure to comply with conditions of approval. (Figure 7.)

Source document:

- CDFW ITP, Section 6.2 “Notification of Non-compliance,” p. 11

Documentation of violation: Figures 1–7 photos

Figure 7. Unauthorized damage by prohibited equipment to protected native grassland along east-facing perimeter fence in public parkland outside the development footprint (Site Areas E2–F). Approximately 450 linear feet x 25’ = estimated .26 acres. **Complaint sections 1a–d, f, h; 2a, c, d.**



3. PERMIT CONDITION: Implement invasive weed control at commencement of ‘Covered Activities’ (i.e., construction activities).

EBZS COMPLIANCE: Disregarded

According to the ITP, high- and moderate-rated invasive weed species that threaten wildlands in California shall be removed and prevented from re-establishing during this project.

There is no evidence of any weed control effort by EBZS, despite the permit requirement and the potential of these weeds to degrade substantial portions of the conservation easement, and even the entire park.

Figure 8. Left unattended, invading stinkwort (*Dittrichia graveolens*) in Knowland Park is moving up the north access fire road from Golf Links Road, with untreated broom (*Genista monspessulana*) behind it. (October 2015) **Complaint sections 2c, 3.**



Since July 2015, when project construction began, not only have small areas of invasive broom gone unattended, but a new invasive weed, stinkwort (*Dittrichia graveolens*), has been making inroads into the park via disturbed areas. This new, harmful weed remained unattended in 2015, despite the permit requirements to control invasive weeds when ‘Covered Activities’ commenced.

Stinkwort is noxious and has the potential to take over the disturbed soil surfaces, in addition to the fire roads scraped by the City over the years. Stinkwort has been implicated in livestock deaths, and therefore may pose harm to grazing wildlife. **(Figure 8.)**

Source document:

- CDFW ITP, Section 7.11 “Invasive Species,” pp. 15–16
- CDFW ITP, Section 6.3 “Compliance Monitoring,” p. 11

Documentation of violation: Figure 8 photo

III. Requested CDFW actions

We ask CDFW to confirm that protections under the CDFW Incidental Take Permit for sensitive native grassland and Alameda striped racer habitat are required, not discretionary. We also request that you report your findings on the EBZS violations noted in this complaint.

We ask you to enforce the requirements and intent of the Incidental Take Permit (ITP) you have granted to EBZS by taking actions in these **four areas**:

- 1. Require EBZS to submit legible baseline documents that specifically show the locations of protected native grassland, permitted damage, and actual damage to date.**
 - a. Require EBZS to clearly map the protected native grasslands on all active and future construction plans, and mark them in the field, per explicit requirements of the permits.**
 - b. Require EBZS to clearly designate the areas of permitted damage, as well as actual damage to date (permitted and unpermitted).**

The public has been provided a nearly illegible map (see Attachment A) that does not adequately identify where CDFW and USFWS will allow permanent and “temporary” damage to native grasslands and Alameda striped racer habitat. It does not specify the acreage of these permitted areas that could then be used to measure and track permit compliance. (*Note: EBZS is capable of providing legible site drawings, as evidenced in Attachment 1B – an example of mapping they submitted for their RWQCB erosion control plan*).

CDFW should require EBZS to produce a legible map and spreadsheet to:

- Identify the projected 4.36 acres of native grassland permitted to be lost during construction
- Specify where the permit allows *permanent* and *temporary* damage (i.e., “disturbance zones” discussed in the SMND/A – Habitat Enhancement Plan)
- Detail the locations and acreage of the *unpermitted* damage in a report available to the public

EBZS should provide this information to CDFW to fully comply with their ITP annual report of January 31, 2016 (ITP, Section 6.5, “Annual Status Report”), and as indicated in monthly compliance reports (ITP, Section 6.4, “Monthly Compliance Report”).

2. Require prompt repair of habitat damage from fence construction.

At least one acre of visible, unauthorized habitat loss has resulted from the construction methods EBZS used to install both the perimeter fence and wildlife exclusion fence (see Attachment 1D).

a. Repair the temporary and the unpermitted damages from perimeter fence construction.

The ITP allows for specified “temporary impacts” and “permanent impacts,” and has provisions for addressing them. However, habitat damage from permit violations may result in the stopping of work for 25 days or longer, or suspension or cancellation of the permit.

The “Temporary Impacts” section (ITP Sections 6.9–6.10) states that the “permittee shall restore on-site the 4.36 acres of ‘Covered Species’ habitat that will be temporarily disturbed during construction to pre-project or better conditions.” It specifies that all areas temporarily disturbed are to be repaired by October 31 of the year they are disturbed or “the permittee shall be responsible for providing additional mitigation,” including native grassland restoration at a 3:1 ratio. There is no evidence that the habitat damaged from July through September 2015 was repaired by the end of October 2015. Therefore, the acreage must be repaired by next October **with the addition of mitigation measures.**

Since there have been unpermitted impacts, sanctions are needed as a penalty for violating permits, and as incentive for EBZS to comply in the future. Sanctions should *directly benefit the site*. In particular, the native prairie damaged outside the perimeter fence and in the Alameda striped racer “conservation easement” should be restored at a 3:1 ratio to the full suite of background native grass and forb species indigenous to this site, as listed in the 2011 Lake inventory (see Attachment 4). Seeds and seedling plugs should come from seed collected on-site. The City building permit states that the native grassland and forb prairie unduly disturbed by perimeter fence construction will be “replaced by owner and back charged to contractor at the cost to plug plant at a minimum of \$1.15 per sq. ft.”

Invasive non-native weeds that are introduced or spread due to the disturbed soil conditions should be completely eradicated, starting now with the 2016 rainy season.

If all applicable areas are not replanted by **October 31, 2016**, the CDFW should suspend or withdraw their permit until all permit conditions for approval and park-benefitting sanctions are met.

An EBZS “Vegetation Restoration Plan” was due to CDFW six months after the ITP was issued (CDFW ITP, Section 8.6 “Habitat Restoration”). That plan should now be updated to include these site-beneficial sanctions.

b. Repair unpermitted damage resulting from how the wildlife exclusion fence was installed.

The area excessively damaged by the wildlife exclusion fence construction, especially the fencing outside the perimeter fence, needs to be promptly repaired. In particular, CDFW should require EBZS to submit a plan to relocate and reconstruct a wildlife exclusion fence that does not damage the area shown in Figure 6 and Attachment 1D, Site Areas D–E.

In addition, the seven-foot-wide band of grassland that was scraped along the full length of the wildlife exclusion fence is unpermitted damage. The method used to install this fencing was for construction expedience, with no regard for the protections in the permits for Alameda striped racer habitat or the protected native grasslands. Therefore, the sanctions discussed for “unpermitted impacts” (Section 2a above) need to be applied. This scraped area should be restored promptly to the richness and cover of background native grass and forb species indigenous to this site at a 3:1 ratio, consistent with mitigation measures.

c. Add to the permit’s performance security fund by at least \$375,000 to ensure proper repair of unpermitted park damage.

The ITP specifies that a “performance security fund” will be established to cover the expected costs of restoration needed after construction (ITP, Section 9). But because CDFW assumed that EBZS would comply with its permit requirements, there is no cost estimate or security (ITP, Sections 8.1 and 9) for repairing habitat damage resulting from permit violations. Therefore, the permit should be amended, as allowed in the ITP (“Amendment,” p. 23), to require that a minimum of \$375,000 be added to the performance security fund to cover costs to ensure the site is made whole.

If EBZS fails to complete this repair work by October 31, 2016, or fails to meet its prescribed performance criteria for restoration within three years (October 31, 2019), the performance security funds would be used for a qualified, independent expert (appointed by CDFW) to oversee proper repairs and restoration of protected native grassland and Alameda striped racer habitat.

3. Enforce the permit provisions for control of invasive weeds.

As the City’s agent for management of Knowland Park, EBZS unfortunately has demonstrated little regard for stewarding the park’s natural resources. For example, Zoo exhibit debris and concrete was dumped years ago in a park swale leading to Arroyo Viejo Creek. In response to numerous

complaints, Dr. Joel Parrott and Nik Dehejia of EBZS sent a memo on June 3, 2011 to the Oakland City Council stating that the Zoo debris filling the park swale would be removed within 60 days. In 2016, it remains jutting out from the swale and draining into the creek (**Figure 9**). As this example illustrates, EBZS compliance with environmental permits will require active monitoring and enforcement, beyond EBZS written assurances.

Figure 9. Zoo exhibit debris dumped in Knowland Park was to be removed in 2011, but remains in a swale draining to Arroyo Viejo Creek to this day.



EBZS’s biological consultants have stressed how this project will rescue this intact and ecologically thriving park from invasive weeds. But with the commencement of California Trail construction, invasive weeds have gone unattended and are proliferating. Permit requirements for invasive weed control must not be ignored at a time when Zoo construction activity has caused extensive soil disturbance that can accelerate the spread of these weeds.

The EBZS baseline invasive weed map is due to CDFW now (ITP, Section 7.11.2 “Invasive Species”). Please require EBZS to report on the status of meeting their invasive weed requirements (ITP, Section 6.4, “Monthly Compliance Report” and Section 6.5, “Annual Status Report”). If the invasive weeds are not eradicated in the months ahead, according to the permit, the permit should be suspended until its conditions for approval are met.

4. Implement independent monitoring to ensure ongoing EBZS permit compliance.

Impose monetary sanctions against EBZS’ disregard for ITP provisions as a means to deter further permit violations. Use these sanctions to fund the needed independent site monitoring that will ensure that EBZS complies with their permit conditions *for the duration of this project*.

V. Supporting exhibits

Attachment 1A.

EBZS map of California native grasslands in project area does not clearly indicate where habitat damage is permitted

Attachment 1B.

Example of EBZS CA Trail building plan with no designation of protected native grasslands

Attachment 1C.

Layout of EBZS perimeter fence

Lettered areas are taken from City building permits (#GR1500068 – #PZ1500051)

Attachment 1D.

Overview of protected native grassland/Alameda striped racer habitat damaged by EBZS construction in violation of environmental permits

Attachment 2.

“No-trench” wildlife exclusion fence – available and non-destructive alternative

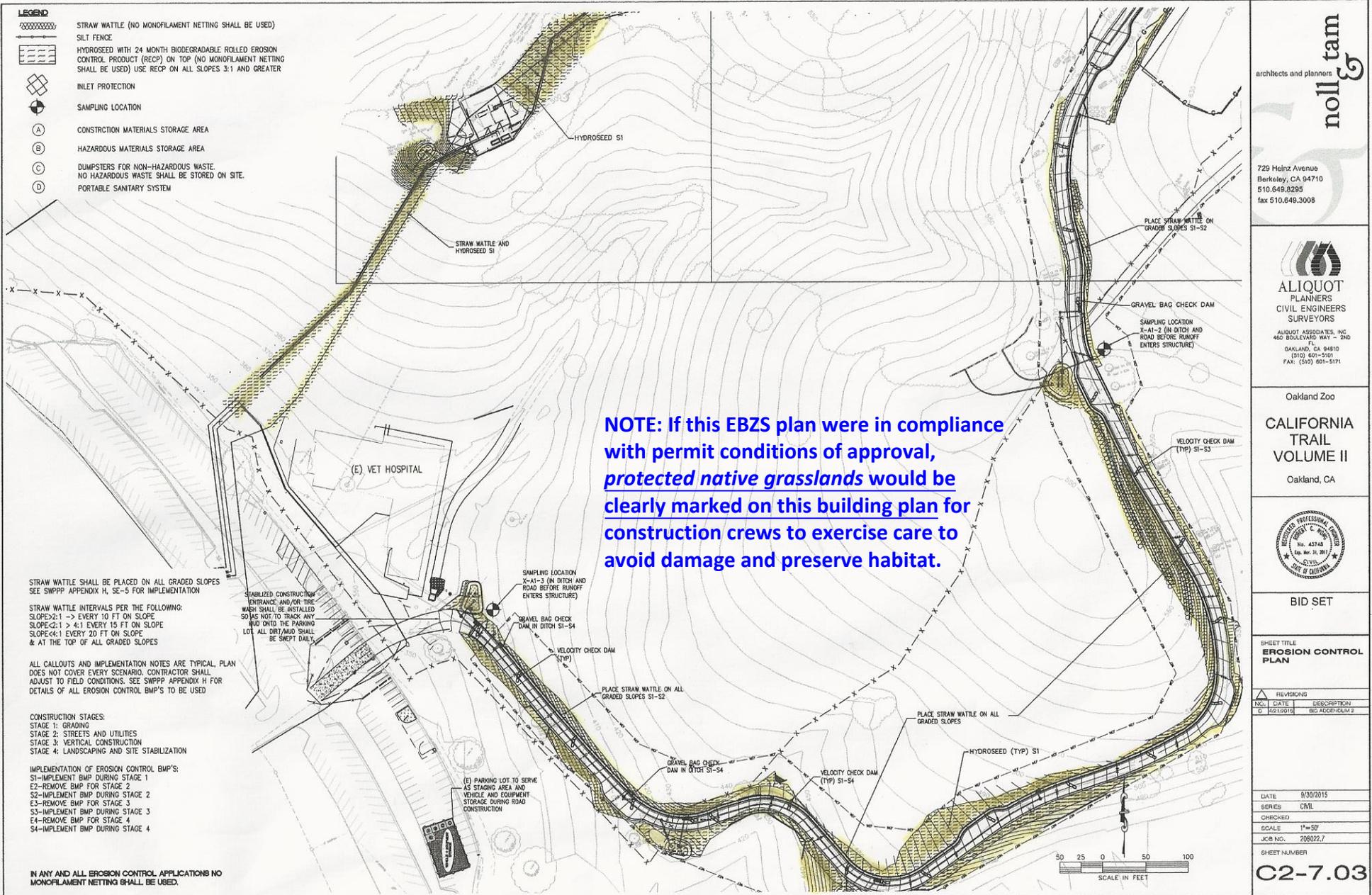
Attachment 3.

Vegetation preservation standard practices – submitted by EBZS when applying for their Regional Water Quality Control Board erosion control permit

Attachment 4.

California Native Plant Society, Lake Inventory, Rare and Unusual Plants of Knowland Park, (Current and Historical) as of January 2011, by Dianne Lake

Attachment 1B - Example of EBZS CA Trail building plan with no designation of protected native grasslands
 In direct violation of their regulatory permits, EBZS ignored requirement to map locations of "protected native grasslands" on all building plans.



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CALIFORNIA TRAIL
 VOLUME II
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BID SET

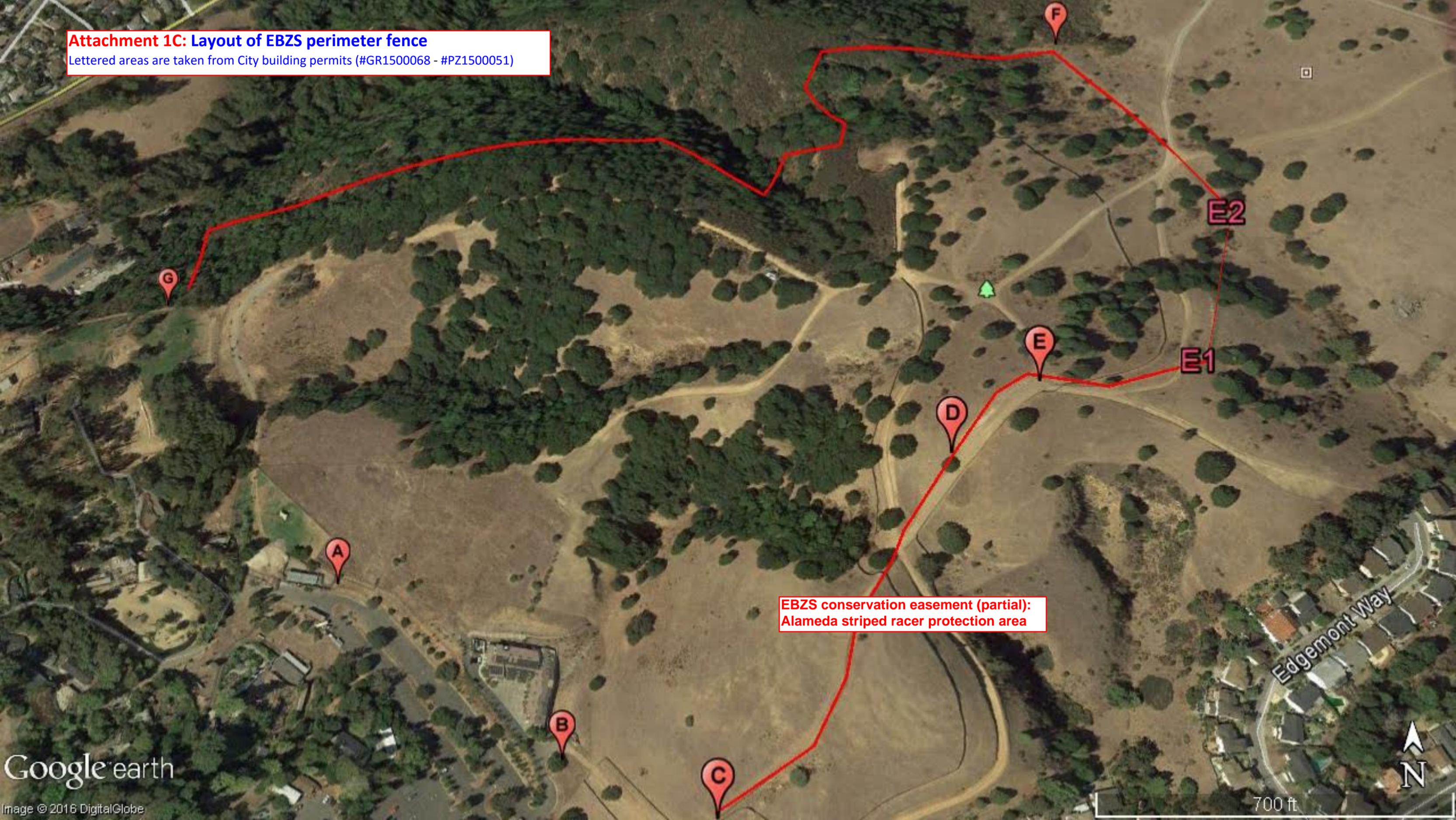
SHEET TITLE
EROSION CONTROL PLAN

NO.	DATE	DESCRIPTION
1	12/16/16	BID ADDENDUM 2

DATE	9/30/2015
SERIES	CIVIL
CHECKED	
SCALE	1"=50'
JOB NO.	208022.7
SHEET NUMBER	

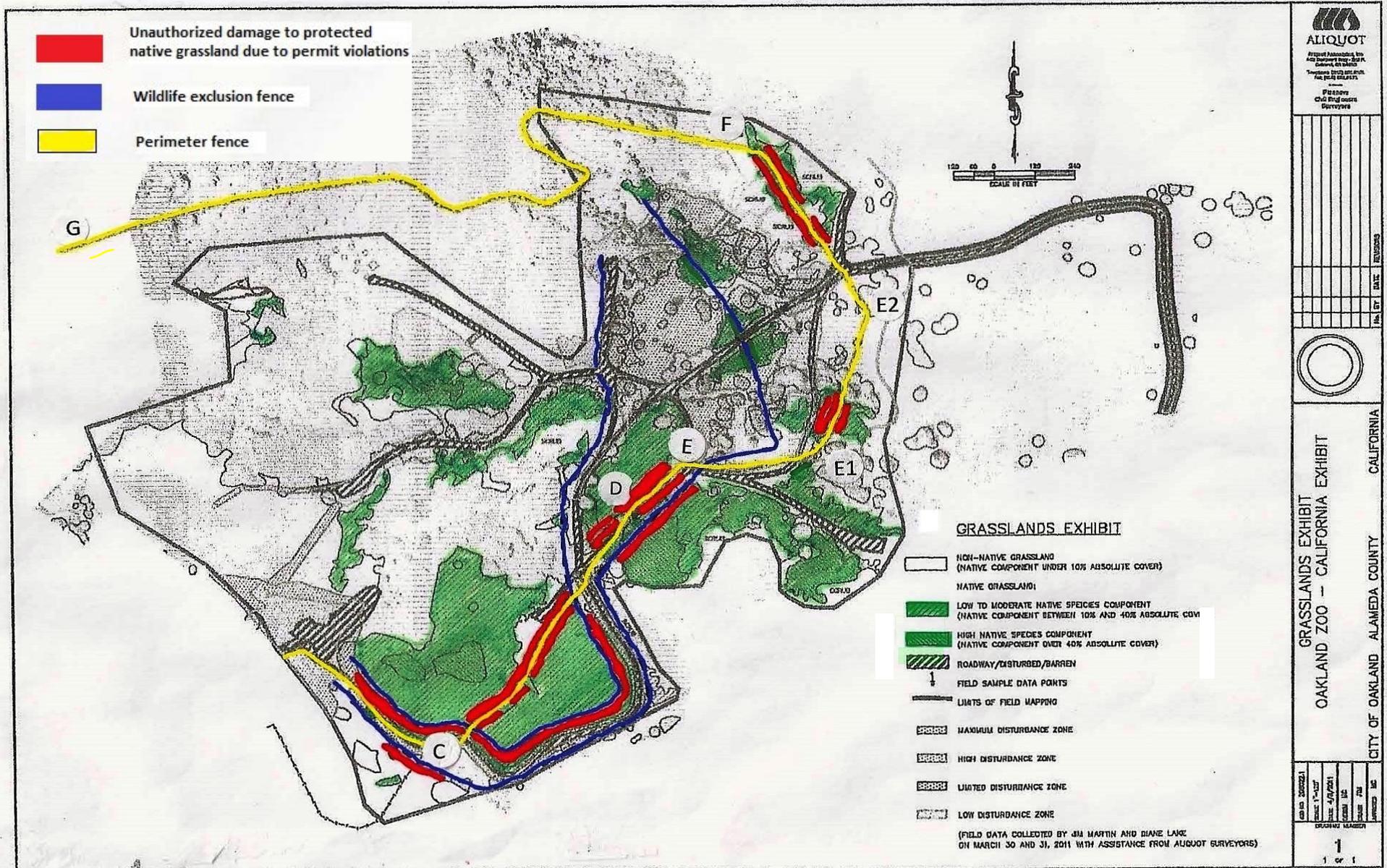
C2-7.03

Attachment 1C: Layout of EBZS perimeter fence
Lettered areas are taken from City building permits (#GR1500068 - #PZ1500051)



**EBZS conservation easement (partial):
Alameda striped racer protection area**

Attachment 1D: Overview of protected rare native grasslands/Alameda striped racer habitat damaged by EBZS construction in violation of environmental permits



At least 1 acre of unpermitted damage is noted from project boundaries; acreage is clearly an underestimate and requires independent inventory. Damage further inside the project site is unknown. Lettered areas are taken from City building permits #GR1500068 – #PZ1500051 for perimeter fence.

Attachment 2:

“No-trench” wildlife exclusion fence – available and non-destructive alternative

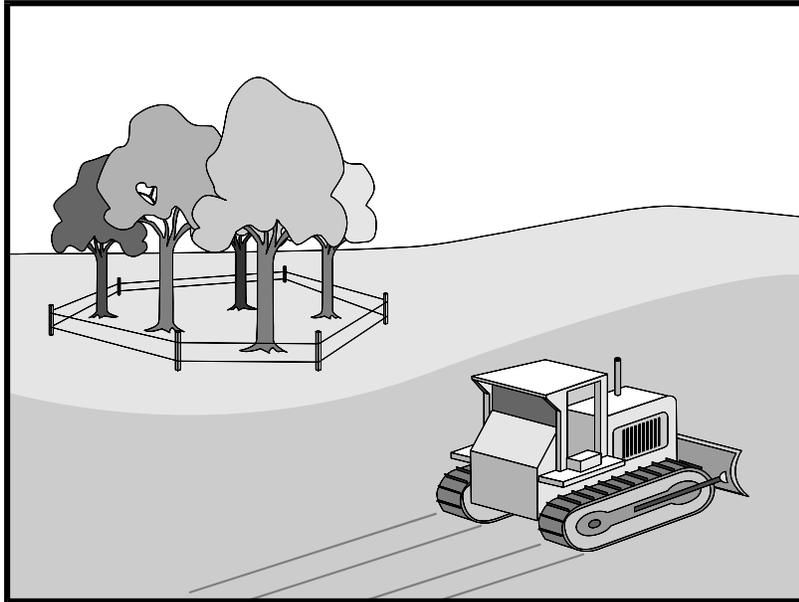


From manufacturer’s product description of a commercially-available wildlife exclusion fence:

“No-Trench Ground-Seal – An excellent option for areas that cannot be trenched such as: across creek areas with ephemeral flows, areas with no storm water permit, slopes, rough terrain, remote areas difficult to reach with trenching equipment, **areas where there is a preference not to disturb the soil.”**

“Partial list of approved configurations: **Alameda striped racer (*Masticophis lateralis euryxanthus*)**, Arroyo toad (*Bufo microscaphus californicus*), Blunt-nosed leopard lizard (*Gambelia sila*), California red-legged frog (*Rana draytonii*), California tiger salamander (*Ambystoma californiense*), Coachella Valley fringe-toed lizard (*Uma inornata*), Desert tortoise (*Gopherus agassizii*), Foothill yellow-legged frog (*Rana boylei*), Giant garter snake (*Thamnophis gigas*), Giant kangaroo rat (*Dipodomys ingens*), Mojave ground squirrel (*Xerospermophilus mohavensis*), Northern cricket frog (*Acris crepitans*), Pacific tree frog (*Pseudacris regilla*), Riparian brush rabbit (*Sylvilagus bachmani riparius*), Salt marsh harvest mouse (*Reithrodontomys raviventris*), San Bernardino kangaroo rat (*Dipodomys merriami parvus*), San Francisco garter snake (*Thamnophis sirtalis tetrataenia*)...”

Preservation Of Existing Vegetation EC-2



Categories

EC	Erosion Control	<input checked="" type="checkbox"/>
SE	Sediment Control	<input type="checkbox"/>
TC	Tracking Control	<input type="checkbox"/>
WE	Wind Erosion Control	<input type="checkbox"/>
NS	Non-Stormwater Management Control	<input type="checkbox"/>
WM	Waste Management and Materials Pollution Control	<input type="checkbox"/>

Legend:

- Primary Objective
- Secondary Objective

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	<input type="checkbox"/>
Trash	<input type="checkbox"/>
Metals	<input type="checkbox"/>
Bacteria	<input type="checkbox"/>
Oil and Grease	<input type="checkbox"/>
Organics	<input type="checkbox"/>

Potential Alternatives

None

Description and Purpose

Carefully planned preservation of existing vegetation minimizes the potential of removing or injuring existing trees, vines, shrubs, and grasses that protect soil from erosion.

Suitable Applications

Preservation of existing vegetation is suitable for use on most projects. Large project sites often provide the greatest opportunity for use of this BMP. Suitable applications include the following:

- Areas within the site where no construction activity occurs, or occurs at a later date. This BMP is especially suitable to multi year projects where grading can be phased.
- Areas where natural vegetation exists and is designated for preservation. Such areas often include steep slopes, watercourse, and building sites in wooded areas.
- Areas where local, state, and federal government require preservation, such as vernal pools, wetlands, marshes, certain oak trees, etc. These areas are usually designated on the plans, or in the specifications, permits, or environmental documents.
- Where vegetation designated for ultimate removal can be temporarily preserved and be utilized for erosion control and sediment control.

Limitations

- Requires forward planning by the owner/developer,



Preservation Of Existing Vegetation EC-2

contractor, and design staff.

- Limited opportunities for use when project plans do not incorporate existing vegetation into the site design.
- For sites with diverse topography, it is often difficult and expensive to save existing trees while grading the site satisfactory for the planned development.

Implementation

The best way to prevent erosion is to not disturb the land. In order to reduce the impacts of new development and redevelopment, projects may be designed to avoid disturbing land in sensitive areas of the site (e.g., natural watercourses, steep slopes), and to incorporate unique or desirable existing vegetation into the site's landscaping plan. Clearly marking and leaving a buffer area around these unique areas during construction will help to preserve these areas as well as take advantage of natural erosion prevention and sediment trapping.

Existing vegetation to be preserved on the site must be protected from mechanical and other injury while the land is being developed. The purpose of protecting existing vegetation is to ensure the survival of desirable vegetation for shade, beautification, and erosion control. Mature vegetation has extensive root systems that help to hold soil in place, thus reducing erosion. In addition, vegetation helps keep soil from drying rapidly and becoming susceptible to erosion. To effectively save existing vegetation, no disturbances of any kind should be allowed within a defined area around the vegetation. For trees, no construction activity should occur within the drip line of the tree.

Timing

- Provide for preservation of existing vegetation prior to the commencement of clearing and grubbing operations or other soil disturbing activities in areas where no construction activity is planned or will occur at a later date.

Design and Layout

- Mark areas to be preserved with temporary fencing. Include sufficient setback to protect roots.
 - Orange colored plastic mesh fencing works well.
 - Use appropriate fence posts and adequate post spacing and depth to completely support the fence in an upright position.
- Locate temporary roadways, stockpiles, and layout areas to avoid stands of trees, shrubs, and grass.
- Consider the impact of grade changes to existing vegetation and the root zone.
- Maintain existing irrigation systems where feasible. Temporary irrigation may be required.
- Instruct employees and subcontractors to honor protective devices. Prohibit heavy equipment, vehicular traffic, or storage of construction materials within the protected area.

Preservation Of Existing Vegetation EC-2

Costs

There is little cost associated with preserving existing vegetation if properly planned during the project design, and these costs may be offset by aesthetic benefits that enhance property values. During construction, the cost for preserving existing vegetation will likely be less than the cost of applying erosion and sediment controls to the disturbed area. Replacing vegetation inadvertently destroyed during construction can be extremely expensive, sometimes in excess of \$10,000 per tree.

Inspection and Maintenance

During construction, the limits of disturbance should remain clearly marked at all times.

Irrigation or maintenance of existing vegetation should be described in the landscaping plan. If damage to protected trees still occurs, maintenance guidelines described below should be followed:

- Verify that protective measures remain in place. Restore damaged protection measures immediately.
- Serious tree injuries shall be attended to by an arborist.
- Damage to the crown, trunk, or root system of a retained tree shall be repaired immediately.
- Trench as far from tree trunks as possible, usually outside of the tree drip line or canopy. Curve trenches around trees to avoid large roots or root concentrations. If roots are encountered, consider tunneling under them. When trenching or tunneling near or under trees to be retained, place tunnels at least 18 in. below the ground surface, and not below the tree center to minimize impact on the roots.
- Do not leave tree roots exposed to air. Cover exposed roots with soil as soon as possible. If soil covering is not practical, protect exposed roots with wet burlap or peat moss until the tunnel or trench is ready for backfill.
- Cleanly remove the ends of damaged roots with a smooth cut.
- Fill trenches and tunnels as soon as possible. Careful filling and tamping will eliminate air spaces in the soil, which can damage roots.
- If bark damage occurs, cut back all loosened bark into the undamaged area, with the cut tapered at the top and bottom and drainage provided at the base of the wood. Limit cutting the undamaged area as much as possible.
- Aerate soil that has been compacted over a trees root zone by punching holes 12 in. deep with an iron bar, and moving the bar back and forth until the soil is loosened. Place holes 18 in. apart throughout the area of compacted soil under the tree crown.
- Fertilization
 - Fertilize stressed or damaged broadleaf trees to aid recovery.
 - Fertilize trees in the late fall or early spring.

Preservation Of Existing Vegetation EC-2

- Apply fertilizer to the soil over the feeder roots and in accordance with label instructions, but never closer than 3 ft to the trunk. Increase the fertilized area by one-fourth of the crown area for conifers that have extended root systems.
- Retain protective measures until all other construction activity is complete to avoid damage during site cleanup and stabilization.

References

County of Sacramento Tree Preservation Ordinance, September 1981.

Stormwater Quality Handbooks Construction Site Best Management Practices (BMPs) Manual, State of California Department of Transportation (Caltrans), November 2000.

Stormwater Management of the Puget Sound Basin, Technical Manual, Publication #91-75, Washington State Department of Ecology, February 1992.

Water Quality Management Plan for The Lake Tahoe Region, Volume II, Handbook of Management Practices, Tahoe Regional Planning Agency, November 1988.

Attachment 4: California Native Plant Society, Lake Inventory, 2011

(p. 1 of 11)

INTRODUCTION

Significant
Plants of Alameda and Contra
Costa Counties. 5th Edition
Dann Lake
201

The botanical wealth of the East Bay is rarely realized or appreciated. More plant communities come together in Alameda and Contra Costa counties than almost anywhere else in the state. Great Valley vegetation meets Coastal, and moist northern communities meet dry southern ones. Islands of Sierran and desert vegetation occur here as well as serpentine outcrops, vernal pools, dune fields, and alkaline communities. Salt marshes fringe San Francisco Bay, freshwater marshes border the Delta, and brackish marshes lie in between. Fifty-five plant species reach their northern range limit here and 19 reach their southern limit.

Of the estimated 1500 plant taxa occurring in the two counties, 135 are currently listed as rare or endangered statewide by the U.S. Fish and Wildlife Service, the California Department of Fish and Game, or the state level of the California Native Plant Society (CNPS), and are thus protected by the California Environmental Quality Act (CEQA).

But many more plant species also lead a precarious existence here. In the course of its field studies, the East Bay Chapter of the California Native Plant Society has found 608 additional species that would meet the standards for rare and endangered status if only their populations in these two counties were considered. Many of these plants occur in very limited or threatened habitats and their numbers are in decline. Of these 608 species, 313 have only one or two currently known locations in Alameda and Contra Costa Counties (ranked as A1 in the East Bay); 231 occur in less than five places in the two counties or are otherwise endangered (A2), and 64 are only known from the area historically and are presumed to have been extirpated here in the last 100 years (A1x).

These 608 locally rare, or unusual, plant species (ranked A1, A2 or A1x in this report) are protected by CEQA in sections 15380 and 15125(a) which address species of local concern and place special emphasis on environmental resources that are rare or unique to a region. Thus they must be considered in local land planning and management issues along with the 135 statewide rare plants referred to above. Unfortunately, they are often overlooked or ignored.

An additional 191 plants are on a High-Priority Watch List and are ranked B, generally occurring in only six to nine regions of the two counties. While they are not currently rare or threatened locally and are not protected by CEQA, they should be closely watched since they could become rare, threatened or endangered if their habitats continue to disappear or decline or other detrimental environmental conditions continue.

A Second-Priority Watch List of 137 C-ranked plants is provided in Appendix C but they are not included in the body of the report. Although still relatively common and widespread in the two-county area (occurring in 10 to 15 regions), they should be monitored since they could also become less common if certain conditions persist.

Because the flora of this area is unique, we must recognize the importance of protecting and preserving these native plant populations and remember that the loss of any species alters and damages the surrounding ecosystem. At the same time, we must seek a better understanding of these plants and how they depend upon and contribute to the environment. This report of *Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties* is presented in the hope that it will serve as a valuable tool in achieving these goals.

METHODOLOGY

In compiling this list, many Bay Area botanists were contacted for their views, and plant lists were reviewed for many East Bay locations. Extensive field studies as well as literature and herbaria searches were conducted. An initial list of 865 candidate species was compiled in 1991 and reviewed by 35 botanists familiar with East Bay flora. Their comments, additions, and changes were reviewed and incorporated. Further field research, interviews, and literature and herbaria searches were then conducted. The resulting list consisted of 611 species, and the report was first issued on March 1, 1991.

Research has continued over the years and the current list consists of 958 species, including 135 statewide rare plants, 632 A-ranked locally rare plants, and 191 B-ranked plants. In addition, a Watch list of 137 C-ranked species is included as Appendix C.

A ranking system was devised based on the number of current locations in Alameda and Contra Costa counties, with A1 indicating plants with only two or less locations here; A2 indicating three to five locations here; and B indicating plants with six to nine locations here. A Watch list with a rank of C was also devised for plants not currently rare, threatened or endangered in the two counties, but with potential to become so if certain trends and practices continue, such as over-development, water diversion, excessive grazing practices, weed and insect invasion, etc.

Other criteria besides number of occurrences were also looked at and a few plants that had more than five locations here but met other criteria were included in the A2 rank, and some plants with more than nine locations here were included in the B rank. Conversely some plants that occur in only three to five places but had large or multiple populations there were moved to a B rank, and some found in only six to nine areas but with large or multiple populations were moved to the C rank. The criteria that qualify these plants for the higher or lower ranks are indicated in the "Comments" column in the body of the report.

Research has continued over the years with more field surveys, herbarium and literature searches, and interviews with area botanists. Herbarium vouchers have been checked at several Bay Area herbaria for all A-ranked (*A1, *A1x, A1, A1x, A1?, *A2, and A2) species and most B-ranked species.

Many people have provided new information and comments, and reader response to both the project and the report itself has been excellent. As a result, new locations have been found for some plant species, while others have been found to be more unusual or threatened than originally thought.

Attachment 4: California Native Plant Society, Lake Inventory, 2011 (p. 3 of 11)

AIM OF REPORT

It is hoped that this report of *Rare, Unusual and Significant Plants of Alameda and Contra Costa Counties* will prove helpful to botanists, planners, land managers, consultants, students and others working with the vegetation of Alameda and Contra Costa counties, and that it will serve to clarify and identify the valuable resources found in this area.

This report also aims to help the reader become aware of the sensitivity and significance of the plants listed in this report, so that when they are encountered in the field they will be treated accordingly.

The high number of plant species appearing in this report and the range of threats facing them in the two counties indicates some of the problems posed by modern society for the natural resources of this area. It is important to recognize the value of these plant populations and how they affect their surrounding environment - their importance to not only the plants that occur there, but also to the wildlife and humans who depend on that environment. A complex inter-dependence exists between man and nature, and the loss or lessening of any of these rare or unusual plant species affects the health of the human, wildlife, and plant environments in which they occur.

The importance of the survival of these plant species must be recognized, and a way must be found for people to co-exist with the natural resources of the area without one severely endangering the other. Steps must be taken to protect these plant populations, and studies must be conducted to better understand the needs of these plants, and what must be done to assure their continued health and proliferation.

To achieve this delicate balance between man and environment, it is essential to learn more about the complex requirements of the various plants in that environment. It is hoped that this report will inspire and help provide areas of study and research for students and researchers, as well as provide important plant distribution information for planners, developers, and land managers.

The list should by no means be considered as a final product and will continue to change as more data become available. The continued accuracy and usefulness of this report depends on the input and cooperation of as many people and sources as possible. All comments, additional information, and suggestions are welcome. The East Bay Chapter of the California Native Plant Society is dedicated to keeping this list as up-to-date and accurate as possible, and information should be addressed to Dianne Lake, 1050 Bayview Farm Rd., #121, Pinole, CA 94564 (Phone: 510-741-8066; Email: diannelake@yahoo.com).

I would like to thank all those who have already commented on and provided information for the report.

PLANTS INCLUDED

"Rare, Unusual and Significant Plants" refers to plant species that are rare, threatened, or endangered in Alameda and Contra Costa Counties, as well as those that meet that criteria statewide. (See discussion of "Rare Plants" and "Unusual Plants" below.)

Only terrestrial, vascular plants are included. An arbitrary decision was made to not include aquatic or non-vascular plants in the interest of keeping the size of the report manageable.

This should in no way be interpreted as an indication that aquatic and non-vascular plants are less important. If anything, it should indicate the need for further study of these plants, and of the importance of compiling similar data for them. Aquatic and non-vascular plants have a very important place in the environment and it is imperative that we increase our knowledge of them - their requirements for survival, their interaction with the local and global environment, and their distribution in our area as well as worldwide. This situation has been realized over the last several years and many efforts are now underway to compile and distribute this important data and to make the general public aware of their importance and need for protection.

Rare Plants

Statewide listed rare plants are indicated by an asterisk preceding their rank, and appear in upper case type.

"Statewide listed rare plants" refers to those species listed as rare, threatened or endangered, or as candidates for such listing, by the U.S. Fish and Wildlife Service, California Dept. of Fish and Game, or the state level of the California Native Plant Society. As of January, 2010, 135 statewide rare plant species are listed as occurring in Alameda and Contra Costa counties either currently or historically.

More detailed information can be found in the sixth edition of the CNPS *Inventory of Rare and Endangered Plants of California*, or the on-line seventh edition at CNPS.org/inventory.

Complete information on rare plants can be obtained from the California Natural Diversity Data Base of the California Dept. of Fish and Game, Sacramento.

Unusual Plants

Unusual plants are indicated by A1, A1x, A1?, A2, or B in the Rank column, with no asterisk preceding the rank.

"Unusual plants" refers to plants that are rare, threatened or endangered in Alameda and Contra Costa counties but not necessarily in the rest of the state, or plants that are on a High-Priority Watch List (B List). This status has been determined through extensive research carried out by the East Bay Chapter of the California Native Plant Society. These ranks and the criteria used to determine them are discussed under "Ranks" below.

Attachment 4: California Native Plant Society, Lake Inventory, 2011 (p. 5 of 11)

NOMENCLATURE

Most species names used in this report are in agreement with those in *the Jepson Manual: Higher Plants of California* by James Hickman (1993) or the *Online Interchange For California Floristics* (ucjeps.berkeley.edu/interchange) which contains updated taxonomy and treatments being compiled for the second edition of the Jepson Manual.

In a few cases, however, the plant names differ, as follows:

Three species of clovers that are included within *Trifolium barbigerum* var. *andrewsii* or *T. fucatum* in the Jepson Manual are listed in this report as separate species: *T. flavulum*, *T. gambelii*, and *T. lilacinum*.

In addition, recent studies have determined that plants in the East Bay previously identified as *Angelica tomentosa* are actually *A. californica*.

RANKS

Ranks are based on the number of botanical regions a species currently occurs in, rather than the number of specific sites. This gives a much more accurate indication of the geographical distribution of a plant species. There may be several specific sites for a species, but if they are all within a few miles of each other, the species is actually much rarer and more endangered than one with the same number of specific sites but spread over a wider range. (See discussion of "Regions" in "Locations" sections on page In-7)

The ranks are as follows:

- *A (114 spp.): Species in Alameda and Contra Costa counties listed as rare, threatened or endangered statewide by federal or state agencies or by the state CNPS.
Protected by CEQA
(Includes 59 *A1, 18 *A1x, and 37 *A2 species)
- A1 (370 spp.): Species known from 2 or less botanical regions in Alameda and Contra Costa Counties, either currently or historically. Protected by CEQA
(Includes 59 *A1 and 311 A1 species)
- A1x (89 spp.): Species previously known from Alameda or Contra Costa Counties, but now believed to have been extirpated, and no longer occurring here.
Protected by CEQA
(Includes 18 *A1x and 71 A1x species)
- A1? (24 spp.): Species possibly occurring in Alameda or Contra Costa counties but there are questions about their identification or location
- A2 (243 spp.): Species currently known from 3 to 5 regions in the two counties, or, if more, meeting other important criteria such as small populations, stressed or declining populations, small geographical range, limited or threatened habitat, etc.
Protected by CEQA
(Includes 37 *A2 and 206 A2 species)

Attachment 4: California Native Plant Society, Lake Inventory, 2011 (p. 6 of 11)

- B (164 spp.): A High-Priority Watch List: Species currently known from 6 to 9 regions in the two counties, or, if more, meeting other important criteria as described above for A2. (Not protected by CEQA)
- C (137 spp.): A Second-Priority Watch List: Species currently known from 10 to 15 regions in the two counties, but potentially threatened if certain conditions persist such as over-development, water diversions, excessive grazing, weed or insect invasions etc. (Listed only in Appendix C and not included in main body of report).

Several criteria have been used to determine which plants qualify for the Rare, Unusual and Significant Plants list. Statewide listing and two or fewer occurrences in Alameda and Contra Costa counties were the first criteria used. But it was discovered that many plants not falling into these two categories were still threatened or endangered here. Several other criteria were therefore looked at as follows:

Disjunct Populations
Declining Populations
Fire-following Plants
Limited or Threatened Habitats
Narrow Range in Alameda and Contra Costa Counties
Range Limits
Small Populations
Small Geographical Range
Stress from weed invasions, disease, insects, drought, etc.

The rank of a species is based only on current populations (1975 or later). Historical, planted, and unconfirmed sites (indicated by parentheses) are not considered since it is not known if the species is currently there, or the population does not occur there naturally.

In a few instances a plant species has more occurrences than its rank indicates, but poor field conditions such as very small or declining populations, small geographical range, limited or threatened habitats, etc. give it the higher rank. In a few other instances a species occurs in fewer places than its rank indicates but large or multiple populations qualify it for a lower rank. The reason for the different rank is explained in the "Comments" column in the report.

LOCATIONS

The current location system, developed for the fifth edition in 1999, consists of 40 botanical regions, and specific sites within those regions. The locations are listed alphabetically by region, with specific sites following. Ranks are determined by the number of regions a species is currently known to occur in, rather than the number of specific sites.

Historical, introduced, and unconfirmed populations are also included in parentheses, but have not been considered in the determination of ranks since it is not known whether or not the populations still exist, or the populations do not occur at the site naturally.

A list of the 40 regions and the specific sites in each can be found starting on page L-1. An alphabetical list of the specific sites occurs at the end of the report.

Attachment 4: California Native Plant Society, Lake Inventory, 2011 (p. 7 of 11)

A map of the regions appears on p. M-1, and a map of many of the specific sites and the regions in which they occur appears on page M-2.

Regions

The regional location system was developed to provide a more accurate picture of the actual distribution of species in the two counties than had been available in the early editions of the report.

Because some areas have been more broadly explored botanically than others, the listing of only specific locations in early editions of this report did not always give an accurate indication of a species' real distribution. For example, the Berkeley Hills have been studied extensively over the years because of their proximity to the University of California at Berkeley, while more outlying areas such as Brentwood and Byron, for example, have not been visited as often. Thus, when ranks were based only on specific sites, as in the early editions of this report, plant species in well-explored areas appeared to be more common than they actually were.

To demonstrate, *Asarum caudatum* would be ranked at the C level using the specific locations system because it currently occurs at 13 specific sites. However, all of these sites are within a few miles of each other and are in similar habitats. Thus, this species is not as common or widespread in the two counties as a C rank would indicate. It actually only occurs in a very small geographical area of the two counties and only in a particular kind of habitat. Using the region system, these 13 specific sites are contained in only four regions, thus giving this plant an A2 rank which is much more indicative of its actual field condition and distribution in the East Bay.

The regions system is based on the eight major regions or sub-divisions of the East Bay determined by Dr. Barbara Ertter in her *Annotated Checklist of the East Bay Flora* (1997). These eight regions were examined, comparing botanical, geological, and geographical characters such as vegetation types, plant communities, habitats, individual plant species occurrences, soil types, bedrock strata, and topography. These studies and comparisons resulted in the development of the 40 botanical regions.

Specific Sites

The number of specific sites has increased over the years as more areas have been explored. Some codes have been divided or expanded, thus giving a more accurate picture of distribution and the actual field conditions of each species.

The list of 40 botanical regions and the specific sites within those regions can be found starting on page L-1. An alphabetical list of specific sites is provided at the end of the report in the Locations Index.

Historical Sites

Populations have been divided into current and historical occurrences with 1975 as the dividing line. This also gives a more accurate picture of the current field conditions of a species and allows for comparisons to past conditions, and the determination of which species may be declining.

Historical populations are included in parentheses with the date of the last known sighting, and are not considered when determining rank because ranks are based only on current populations.

Many plants have not been seen since 1975 or before and are presumed to have been extirpated. These species now have a rank of A1x. A list of these species is provided in Appendix A along with their habitats and where they occurred. The rediscovery of any of these species would be very significant, and the reader is requested to contact the author at (510) 741-8066 or diannelake@yahoo.com if they find any of these extirpated species.

Attachment 4: California Native Plant Society, Lake Inventory, 2011 (p. 8 of 11)

The dividing year between current and historical was 1950 for previous editions, but has now been moved up to 1975. While 1950 was an appropriate division in 1992 when the report first came out, many of those records are now over 60 years old and can hardly be considered "current". Thus 1975 is no more accurate indication of currency.

Unconfirmed Identifications and Sites

"ID?": The identification of some populations are questionable and have not been confirmed. These sites are included in parentheses and indicated by "ID?". They are not considered in the determination of ranks because rank is based only on current populations.

Over the years many of these populations have been visited and identified. Thus the number of locations with this designation has declined substantially with each new edition.

"Loc?": The locations for some populations are questionable. These species have been reported in an area but have not yet been confirmed there. These sites are also included in parentheses and are followed by "Loc?". They are not considered when determining the rank of a plant species.

Many of these sites have also been visited over the years and several have been found, thus reducing the number of such designations.

Planted Sites

Some populations have been introduced as landscaping or restoration projects. These populations are included in parentheses. Since these are not natural sites, they have not been considered in the determination of ranks.

HABITATS

Habitats are listed to help clarify and identify where plants may occur and where they should be looked for. With the increased interest and concern in protecting plant communities and areas, habitat information is an essential tool in determining which areas need protection. A list of habitats and their codes is provided on page In-11.

Habitat requirements were determined by studying habitat and community information in *The Jepson Manual: Vascular Plants of California* by James Hickman (ed.) (1993), *A California Flora and Supplement* by Munz and Keck (1973), *A Manual of California Vegetation* by John O. Sawyer and Todd Keeler-Wolf, 1995, *A Preliminary Guide to the Terrestrial Plant Communities of California* by Robert F. Holland (1986) and the sixth edition of the *CNPS Inventory of Rare and Endangered Vascular Plants of California* by David Tibor (2001), as well as discussions with several bay area botanists.

Many plants qualify for this report at least partially because they occur only in habitats that are limited and/or threatened in Alameda and Contra Costa Counties: alkali areas, perennial grassland, redwood forest, rocky or talus areas, sand or sandstone soils (including coastal bluff and coastal strand), serpentine or serpentine-derived soils, and wetlands (including brackish, freshwater, and salt marshes, riparian areas, vernal pools and miscellaneous wetlands).

Attachment 4: California Native Plant Society, Lake Inventory, 2011 (p. 9 of 11)

from Dianne Lake
Rare and Unusual Plants of Knowland Park (Current and Historical)
 As Of January 2011
 (Statewide Rare Plants Are In Upper Case)

East Bay Rarity Rank	Species	Common Name	Habitat
A2	<i>Brodiaea terrestris</i> ssp. <i>terrestris</i>	dwarf brodiaea	Grassland; Woodland; Misc. Wetlands
*A2	CALOCHORTUS UMBELLATUS	Oakland star-tulip	Chaparral; Scrub; Woodland
A1	<i>Carex dudleyi</i>	Dudley's sedge	Misc. Wetlands
A2	<i>Carex multicosata</i>	many-ribbed sedge	Misc. habitats
A2	<i>Castilleja subinclusa</i> ssp. <i>franciscana</i>	Franciscan Indian paintbrush	Chaparral; Scrub
A2	<i>Corallorhiza maculata</i> var. <i>maculata</i> (forma <i>immaculata</i> is more common in East Bay)	spotted coralroot	Forest; Woodland
A2	<i>Cryptantha torreyana</i>	Torrey's cryptantha	Dry Open Slopes; Forest
A2	<i>Deinandra corymbosa</i> ssp. <i>corymbosa</i> (formerly <i>Hemizonia corymbosa</i>)	coast tarweed	Coastal Bluff; Grassland
A2	<i>Juncus phaeocephalus</i> var. <i>unknown</i>	brown-headed rush	Misc. Wetlands
*A1	LEPTOSIPHON ACICULARIS (formerly LINANTHUS A.)	bristly linanthus	Chaparral; Grassland; Woodland
*A2	MONARDELLA VILLOSA SSP. GLOBOSA (ssp. <i>villosa</i> is more common)	robust monardella	Chaparral; Woodland
A2	<i>Sanicula laciniata</i>	coast sanicle	Chaparral; Scrub; Woodland
*A2	STREPTANTHUS ALBIDUS SSP. PERAMOENUS	most beautiful jewel-flower	Chaparral; Dry Open Slopes; Grassland; Serpentine

Explanation of Ranks

***A1 or *A2:** Species in Alameda and Contra Costa counties listed as rare, threatened or endangered statewide by federal or state agencies or by the state level of CNPS.

A1x: Species previously known from Alameda or Contra Costa Counties, but now presumed extirpated here.

A1: Species currently known from 2 or less regions in Alameda and Contra Costa Counties.

A2: Species currently known from 3 to 5 regions in the two counties, or, if more, meeting other important criteria such as small populations, stressed or declining populations, small geographical range, limited or threatened habitat, etc.

A1?: Species with taxonomic or distribution problems that make it unclear if they actually occur here.

B: High-Priority Watch List: Plants occurring in 6 to 9 regions here or otherwise limited or threatened.

C: Second-Priority Watch List: Plants occurring in 10 to 15 regions here, but have potential threats.

Attachment 4: California Native Plant Society, Lake Inventory, 2011 (p. 10 of 11)

from Dianne Lake
B-Ranked Unusual Plants of Knowland Park (Current and Historical)
 As Of January 2011

East Bay

Rarity

Rank	Species	Common Name	Habitat
B	<i>Antirrhinum vexillocalyculatum</i> ssp. <i>vexillocalyculatum</i>	wiry snapdragon	Rock, Tallus or Scree; Sand or Sandstone areas; Serpentine
B	<i>Calamagrostis rubescens</i>	pine grass	Woodlands
B	<i>Festuca rubra</i>	red fescue	Coastal Bluff; Grassland; Sand or Sandstone
B	<i>Garrya elliptica</i>	silk tassel bush	Coastal Bluff; Chaparral; Sand or Sandstone; Woodland
B	<i>Helianthemum scoparium</i>	peak rush-rose	Chaparral; Dry Open Slopes; Rock, Tallus or Scree; Sand or Sandstone
B	<i>Hordeum jubatum</i>	foxtail barley	Misc. habitats
B	<i>Mentha arvensis</i>	marsh mint	Riparian areas; Misc. Wetlands
B	<i>Ribes divaricatum</i> var. <i>pubiflorum</i>	straggly gooseberry	Coastal Bluff; Riparian; Scrub
B	<i>Rumex salicifolius</i> var. <i>unknown</i>	willow dock	Riparian areas; Misc. Wetlands
B	<i>Sequoia sempervirens</i>	coast redwood	Redwood Forest
B	<i>Sidalcea malviflora</i> ssp. <i>malviflora</i> (ssp. <i>laciniata</i> is more common)	checkerbloom	Grassland
B	<i>Silene laciniata</i> ssp. <i>californica</i> (formerly <i>Silene c.</i>)	California Indian pink	Chaparral; Forest; Woodland
B	<i>Vaccinium ovatum</i>	California huckleberry	Forest; Redwood Forest
B	<i>Vulpia octoflora</i> var. <i>unknown</i>	slender fescue	Chaparral; Dry Open Slopes; Dry Washes; Sand or Sandstone

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**C-Ranked Unusual Plants of Knowland Park (Current and Historical)
As Of January 2011**

East Bay
Rarity
Rank

Rank	Species	Common Name	Habitat
C	<i>Acaena pinnatifida</i> var. <i>californica</i>	California acaena	Coastal Bluff; Rock, Scree or Tallus; Scrub; Sand or Sandstone
C	<i>Arctostaphylos tomentosa</i> ssp. <i>crustacea</i>	brittleleaf manzanita	Chaparral; Sand or Sandstone
C	<i>Calochortus luteus</i>	yellow mariposa lily	Forest; Grassland; Woodland
C	<i>Camissonia ovata</i>	sun cup	Coastal Bluff; Grassland
C	<i>Clematis ligusticifolia</i>	virgin's bower	Riparian
C	<i>Danthonia californica</i> var. <i>californica</i>	California oatgrass	Grassland
C	<i>Hemizonia congesta</i> ssp. <i>lutescens</i> (formerly included in ssp. <i>congesta</i> in Jepson Manual)	hayfield tarweed	Grassland; Serpentine
C	<i>Lilaea scilloides</i>	flowering quillwort	Misc. Wetlands
C	<i>Navarretia mellita</i>	honey-scented navarretia	Chaparral; Gravel; Sand or Sandstone
C	<i>Prosartes hookeri</i> (formerly <i>Disporum</i> h.)	fairy bells	Woodland
C	<i>Rhamnus crocea</i>	spiny redberry	Chaparral; Scrub; Woodland
C	<i>Scutellaria tuberosa</i>	Dannie's skullcap	Burns; Chaparral; Woodland
C	<i>Tauschia hartwegii</i>	Hartweg's <i>tauschia</i>	Chaparral; Woodland
C	<i>Viola pedunculata</i>	Johnny-jump-up	Chaparral; Grassland; Woodland
C	<i>Vulpia microstachys</i> var. <i>ciliata</i> (var. <i>pauciflora</i> is more common)	Eastwood's fescue	Forest; Sand or Sandstone
C	<i>Wyethia glabra</i> (<i>W. helenioides</i> is more common)	mule ears	Scrub; Woodland
C	<i>Yabea microcarpa</i>	California hedge parsley	Misc. habitats

Explanation of Ranks

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